

Amendment to the Claims:

This listing of claims will replace all prior versions and listing of claims in the above-referenced application.

1. (Currently Amended) A substrate system, comprising:

photo-polymerizable ~~monomers, monomers;~~ and

bioactive molecules admixed with the monomers, ~~the bioactive molecules shielded from the monomers by an insoluble material that undergoes a solid-gel transition at body temperature,~~

wherein, upon polymerization, the monomers produce a cross-linked structure ~~and the shielded bioactive molecules are protected from attack in the polymerized environment that undergoes a solid-gel transition at the body temperature of the living organism to which the substrate system is administered, and~~

a material insoluble by the monomers, wherein the insoluble material protects the bioactive molecules during the polymerization process.

2. (Cancelled).

3. (Currently Amended) The system of claim 1, wherein the substrate system is administered to a subject to replace, repair, or restructure used for the subject's tissue engineering.

4. (Cancelled).

5. (Cancelled).

6. (Original) The system of claim 1, wherein the insoluble material is gelatin.

7. (Cancelled).

8. (Cancelled).

9. (Cancelled).

10. (Cancelled).
11. (Cancelled).
12. (Original) The system of claim 1, wherein the bioactive material is a protein.
13. (Cancelled).
14. (Cancelled).
15. (Cancelled).
16. (Cancelled).
17. (Cancelled).
18. (Cancelled).
19. (Cancelled).
20. (Cancelled).
21. (Currently Amended) The system of claim 1, further including a binder, wherein the binder binds the insoluble material to protect the bioactive molecules.
22. (Currently Amended) The system of claim 21, wherein the binder is a sugar ~~or derivative thereof.~~
23. (Cancelled).

24. (Cancelled).

25. (Currently Amended) The system of claim 1, further including a ~~plastifeizer~~ plasticizer, wherein the plasticizer increases the flexibility of the cross-linked structure.

26. (Currently Amended) The system of claim 25, wherein the ~~plastifeizer~~ plasticizer is a polyethylene glycol ~~or derivative thereof.~~

27. (Currently Amended) The system of claim 1, further including a disaggregant, wherein the disaggregant aids with the solid-gel transition.

28. (Currently Amended) The system of claim 27, wherein the disaggregant is a cross-linked synthetic polymer ~~or derivatives thereof.~~

29. (Currently Amended) The system of claim 1, wherein the ~~bioactive molecules are shielded by the insoluble material~~ comprises granulated particles, wherein the granulated particles protect the bioactive molecules from the polymerization process by granulation.

30. (Original) The system of claim 1, further comprising a photopolymerization means for polymerizing the monomers to produce a cross-linked structure including the bioactive molecules.

31. (Previously Presented) The system of claim 30, wherein the photopolymerization means is visible radiation.

32. (Currently Amended) A substrate system, comprising:

photo-polymerizable monomers, ~~monomers~~; and
bioactive molecules ~~previously included in a drug delivery system, the~~ a drug-loaded delivery system comprising bioactive molecules, wherein the bioactive molecules are admixed

with shielded from the monomers by an insoluble material that undergoes a solid-gel transition at body temperature, wherein, upon polymerization, the monomers produce a cross-linked structure and the shielded bioactive molecules are protected from attack in the polymerized environment that undergoes a solid-gel transition at the body temperature of a living organism to which the substrate system is administered, and

a material insoluble by the monomers, wherein the insoluble material protects the bioactive molecules during the polymerization process.

33. (Original) The system of claim 32, wherein the insoluble material is gelatin.

34. (Cancelled).

35. (Cancelled).

36. (Cancelled).

37. (Cancelled).

38. (Cancelled).

39. (Original) The system of claim 32, wherein the bioactive material is a protein.

40. (Cancelled).

41. (Cancelled).

42. (Cancelled).

43. (Cancelled).

44. (Cancelled).

45. (Cancelled).

46. (Cancelled).

47. (Cancelled).

48. (Currently Amended) The system of claim 32, further including a binder, wherein the binder binds the insoluble material to protect the bioactive molecules.

49. (Currently Amended) The system of claim 48, wherein the binder is a sugar ~~or derivative thereof.~~

50. (Cancelled).

51. (Cancelled).

52. (Currently Amended) The system of claim 32, further including a ~~plastifeizer~~ plasticizer, wherein the plasticizer increases the flexibility of the cross-linked structure.

53. (Currently Amended) The system of claim 52, wherein the ~~plastifeizer~~ plasticizer is a polyethylene glycol ~~or derivative thereof.~~

54. (Currently Amended) The system of claim 32, further including a disaggregant, wherein the disaggregant aids with the solid-gel transition.

55. (Currently Amended) The system of claim 54, wherein the disaggregant is a cross-linked synthetic polymer ~~or derivatives thereof.~~

56. (Currently Amended) The system of claim 32, wherein the ~~bioactive molecules are shielded by the insoluble material~~ comprises granulated particles, wherein the granulated particles protect the bioactive molecules from the polymerization process by granulation.

57. (Previously Presented) The substrate system of claim 32, wherein the drug delivery system is dissolution-controlled systems.

58. (Original) The system of claim 32, further comprising a photopolymerization means for polymerizing the monomers to produce a cross-linked structure including the drug molecules.

59. (Previously Presented) The system of claim 58, wherein the photopolymerization means is visible radiation.

60. (Currently Amended) A drug delivery system, comprising:
photo-polymerizable monomers, ~~monomers~~;
drug molecules admixed with the monomers, ~~the drug molecules shielded from the monomers by an insoluble material that undergoes a solid-gel transition at body temperature;~~ and
a photopolymerization means for polymerizing the monomers to produce a cross-linked structure that undergoes a solid-gel transition at the body temperature of the living organism to which the drug delivery system is administered, including wherein the cross-linked structure comprises the drug molecules, and
a material insoluble by the monomers, wherein the insoluble material protects the bioactive materials during the polymerization process.

61. (Previously Presented) The system of claim 60, wherein the photopolymerization means is visible radiation.

62. (Original) The system of claim 60, wherein the insoluble material is gelatin.

63. (Cancelled).

64. (Cancelled).

65. (Cancelled).

66. (Cancelled).

67. (Cancelled).

68. (Cancelled).

69. (Cancelled).

70. (Cancelled).

71. (Cancelled).

72. (Cancelled).

73. (Currently Amended) The system of claim 60, further including a binder, wherein the binder binds the insoluble material to protect the bioactive molecules.

74. (Currently Amended) The system of claim 73, wherein the binder is a sugar ~~or derivative thereof.~~

75. (Cancelled).

76. (Cancelled).

77. (Currently Amended) The system of claim 60, further including a ~~plastifeizer~~ plasticizer, wherein the plasticizer increases the flexibility of the cross-linked structure.

78. (Currently Amended) The system of claim 77, wherein the ~~plastifeizer~~ plasticizer is a glycerin, propylene glycol, polyethylenc glycol, triacetin, acetylated monoglyceride, citrate ester, ~~phthalate ester or a combination or derivative thereof.~~

79. (Currently Amended) The system of claim 60, further including a disaggregant, wherein the disaggregant aids with the solid-gel transition.

80. (Currently Amended) The system of claim 79, wherein the disaggregant is a cross-linked synthetic polymer ~~or derivatives thereof.~~

81. (Currently Amended) The system of claim 60, wherein ~~the drug molecules are shielded by~~ components of the insoluble material are granulated so that the insoluble material effectively shields the bioactive molecules from the polymerization process by granulation.